

FIBER OPTIC ROTARY JOINT
AND ASSOCIATED REFLECTOR ASSEMBLY

ABSTRACT OF THE DISCLOSURE

5 A fiber optic rotary joint and an associated reflector assembly are provided for supporting optical communications between a rotor and a stator. The fiber optic rotary joint includes at least one optical source carried by the rotor or the stator for transmitting optical signals. The fiber optic rotary joint also includes a reflector mounted upon the other one of the rotor and stator for reflecting the optical signals. Further, the fiber optic rotary joint includes a receiver for receiving the optical signals following their reflection. 10 The reflector is generally shaped and positioned such that the path length along which the optical signals propagate from the optical source(s) to the receiver is equal, regardless of the rotational position of the rotor to the stator. The reflector may have a reflective surface shaped to define a portion of an ellipse and/or a reflective surface shaped to 15 define a portion of a hyperbola.

CLT01/4607846v1